



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/835,040	04/13/2001	Jerry B. Roberts	M0000-1001	5093

7590 04/28/2006

William D. Miller, Esq.  
3M Office of Intellectual Property Counsel  
P.O. Box 33427  
St. Paul, MN 55133-3427

EXAMINER

NGUYEN, KIMNHUNG T

ART UNIT	PAPER NUMBER
----------	--------------

2629

DATE MAILED: 04/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/835,040

Applicant(s)

ROBERTS, JERRY B.

Examiner

Kimnhung Nguyen

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment filed on 11/11/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 111-164 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 111-164 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This Application has been examined. The claims 111-164 are pending. Claims 1-110 are canceled. The examination results are as following.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 111-164 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frisch et al. (US 5,854,625) in view of Bersitis et al. (US 6,115,030).

Regarding claims 111,140, Frisch et al. discloses in figure 2A-3B, a force sensor for sensing a touch force applied to touch surface (18), the force sensor comprising: a first element (see spring 20) including an elastic element (because the spring 20 could be elastic member) and a first capacitor plate (see touch surface 18 comprising a first capacitor 24a) having first capacitive surface; and second element (see spring 20 including a second capacitor plate (24b) opposed to the first capacitor plate; wherein transmission of at least part of the touch force through the elastic element contributes to a change capacitance between the first capacitor plate and the second capacitor plate (see column 5, lines 62-67).

However, Frisch et al. does not disclose the elastic element including at least part of the first capacitor plate.

Art Unit: 2629

Berstis et al. discloses a input system in fig. 1A, an elastic element (32) including at least part of the capacitor plate (22, fig. 1A, see col. 2, lines 52-54); or an elastic element (332) also including at least part of the capacitor plate (328, see fig. 4, see col. 7, lines 39-42, col. 7, lines 60-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the using of an elastic element including at least part of the capacitor as taught by Berstis et al. into the system of Frisch et al. because this would provide the restoring force, and is preferably shaped as an arch to distribute the stress and keep the stress well within the elastic limit of the material for the user (see col. 2, lines 53-56).

Regarding claim 112, 141, Frisch et al. discloses further the first element (2) is substantially planar (see figure 2A).

Regarding claims 113, Frisch et al. does not disclose the first capacitor plate and the elastic element are integral. Berstis et al. discloses the first capacitor plate (22) and the elastic element (32) are integral (see fig. 1A) as discussed above.

Regarding claims 114-119, 142, Frisch et al. discloses the first capacitor plate and the elastic element are composed have the same substrate (see figure 2A), and wherein the elastic element comprises an elevated feature of the first capacitor plate, and located at the elastic center of the first element (12, see figure 2A), and the force sensor, further comprising force-receiving means (regions 32) for receiving at least part of the touch force into the first element (see column 6, lines 65-67).

Regarding claims 120-121, 145-146, Frisch et al. discloses the force sensor further, the touch surface (18) is in communication with a region surface of the force-receiving means (32),

Art Unit: 2629

and wherein the touch surface tends to remain in contact with the region the surface of the force-receiving means when the position of the touch surface changes with respect the force-receiving means (see col.6, lines 65-67), further comprising force transmission means (32) for transmitting at least part of the touch force to at least one structure other than the first element.

Regarding claims 122-125, 158, Frisch et al. discloses further the force sensor, wherein the second element (14) comprises planar support surface that includes a plurality electrically conductive mechanical bearing contacts (see col. 5, lines 62-64); and wherein at least portions of the first capacitor plate are in contact with the plurality of mechanical bearing contacts to transmit force thereto (see col. 5, lines 62-67), wherein the second capacitor plate (24b) includes a second capacitive surface that is coplanar with the plurality of mechanical bearing contacts and are composed of the same substrate (see col.6, lines 36-38). The force sensor of claim wherein the planar support surface is part of an interconnect system to transmit a signal developed response to the change capacitance between the first capacitor plate and the second capacitor plate (see col. 5, lines 39-46), and wherein the second capacitive surface and the at least one support surface are integral (see figure 2A).

Regarding claims 127-129, 152-154, Frisch et al. discloses that the force sensor, further comprising force signal development means for developing a signal in response to the change in capacitance between the first capacitor plate and the second capacitor plate, and wherein the force sensor includes an inherent axis of sensitivity that passes through the elastic, and wherein the touch surface is a touch surface of a handheld device (see column 3, lines 33-37).

Regarding claims 126, 130-139, 151, 155-157 and 159-164 Frisch et al. and Berstis et al. disclose every feature of the claimed invention as discussed above, excluding wherein the first and second capacitor plates are separated by a volume, and wherein the ratio of the height of the volume to the volume's greatest breadth is less than .05; or the length of the mechanical path defining the capacitive gap being no greater than one-fifth of the maximum distance between any two force sensors that are used in the touch location device, or wherein the first capacitive surface, the elastic element and, and the second capacitor plate has a greatest dimension that is at least five times its least dimension; or the length of the mechanical path defining the capacitive gap being no greater than four times the maximum dimension of the volume of the capacitor gap; or the unloaded state of the force sensor not more than 10 mils, or the unloaded state of the force sensor is not less than thirty times the average height of the capacitive gap in the unloaded state of the force sensor; or the wherein the force sensor has a normal stiffness not less than 0.5 pounds per mil.

It would have been obvious for Frisch et al. and Berstis et al.'s system to have excluding wherein the first and second capacitor plates are separated by a volume, and wherein the ratio of the height of the volume to the volume's greatest breadth is less than .05; or the length of the mechanical path defining the capacitive gap being no greater than one-fifth of the maximum distance between any two force sensors that are used in the touch location device, or wherein the first capacitive surface, the elastic element and, and the second capacitor plate has a greatest dimension that is at least five times its least dimension; or the length of the mechanical path defining the capacitive gap being no greater than four times the maximum dimension of the volume of the capacitor gap; or the unloaded state of the force sensor not more than 10 mils, or

Art Unit: 2629

the unloaded state of the force sensor is not less than thirty times the average height of the capacitive gap in the unloaded state of the force sensor; or the wherein the force sensor has a normal stiffness not less than 0.5 pounds per mil as claimed since such a modification would have involved a mere change in size/range of the system. A change in size/range is generally recognized as being within the level of ordinary skill in the art.

See In Rose, 105 USPQ 237 (CCPA 1995) and

See In re Reven, 156 USPQ 679 (CCPA 1968).

***Response To Arguments***

3. Applicant's arguments filed on 11/11/05 have been fully considered but they are not persuasive, because Berstis et al. teaches an elastic element including at least part of the capacitor and discussed above. For these reasons the rejections are maintained.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2629

### ***Correspondence***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimnhung Nguyen whose telephone number is (571) 272-7698.

The examiner can normally be reached on MON-FRI, FROM 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kimnhung Nguyen  
April 26, 2006



**RICHARD HJERPE**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**